

INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2004	Park: Shenandoah NP
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Permit#: SHEN-2002-SCI-0022	
Park-assigned Study Id. #: SHEN-00058	
Project Title: Timber Rattlesnake Population Monitoring	
Permit Start Date: Jan 01, 2002	Permit Expiration Date Dec 31, 2008
Study Start Date: Jun 01, 1990	Study End Date Dec 31, 2027
Study Status: Continuing	
Activity Type: Research	
Subject/Discipline: Herpetology (Amphibians / Reptiles)	
Objectives: 1. Locate overwintering dens and birthing rookeries. 2.Determine movements of snakes. 3. Determine timing of seasonal activities. 4.Determine rates of growth, shedding, maturation, reproduction, and survivorship. 5. Investigate annual variations in life history characteristics. 6. Investigate relationship between weather, acorn production, rodents, and rattlesnake reproduction. 7. Investigate relationship between weather and failure to bring the young to term. 8. Determine long-term population trends.	
Findings and Status: <p>During 2004, only four days were spent in Shenandoah. A total of 85 Timber Rattlesnakes, including 19 newborn from 4-5 litters were seen. On 21 April, 41 rattlesnakes were observed, the largest one-day total (excluding newborn) that I have seen in 32 years of monitoring in Shenandoah (study began in June 1973). This site covers approximately 1 mile (1.6 km) of hillside 1300-1700 ft elevation and is located in a stream gorge which drains the west side of the Blue Ridge. The major denning area contains two discrete dens located in scree about 100 meters apart. Another discrete den is located about 350 meters distant. The number of snakes seen was respectively 16, 17, and 10. An additional 8 snakes that appeared to be solitary hibernators were found 800-1000 meters from the main den. At the same site on 19 August, 9 adult rattlesnakes were observed along with 18 newborn from 3-4 litters seen with females. (It is not always possible to positively determine how many litters are represented, nor is it always possible to determine breeding condition of all adults.) An additional two or three females appeared to still be pregnant. Although temperatures were below average and rainfall above average for June-August, the exceptionally high temperatures in May resulted in births occurring a little earlier than average. (The accumulation of cooling degree days was two days ahead of average by the end of August.)</p> <p>On 30 September a high elevation (2800 ft) birthing site and den (3050 ft) was checked and three 1-yr-old juveniles were found in the vicinity of the birthing site. At another den with nearby birthing site (3150-3200 ft) no snakes were seen. On 4 October, 7 snakes (with two more heard but not seen) were observed at a 2550 ft den, and then 6 snakes were seen at a den at 2500 ft.</p> <p>The age-class distribution was 19 newborn, 19 juveniles 1-3 yr old, and 47 adult or subadult snakes. Only 7 snakes were definitely reproductive (pregnant or recently postpartum) during â 04. Because of their greater catchability, reproductive females typically make up about 50% of the adults seen. The low proportion of reproductive females and the low number of litters indicate reproduction was poor during â 04. Reproduction should be higher in â 05 than â 04, but an exceptional reproductive year is not forecast due to rather poor weather for foraging, assimilation, and fat storage.</p>	

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses? No	
Funding provided this reporting year by NPS: 0	Funding provided this reporting year by other sources: 500
Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university: n/a	Annual funding provided by NPS to university or college this reporting year: 0